IN THE CLAIMS:

Please amend without prejudice claims 7 to 10 as follows:

7. (Amended) The interferometer according to claim 6, wherein the interferometer is a two-beam interferometer, wherein the light is a linearly polarized light, and wherein the polarizer includes a first $\lambda/4$ retardation plate allocated to one of the reference surface and the test object, and a second $\lambda/4$ retardation plate positioned before the analyzer.

B2

8. (Amended) The interferometer according to claim 6, wherein the analyzer includes a rotatable linear analyzer.

9. (Amended) The interferometer according to claim 6, wherein the analyzer includes an electrically tunable liquid-crystal element with a linear polarizer.

10. (Amended) The interferometer according to claim 6, wherein the analyzer is arranged physically separate from the interferometer.

REMARKS

Claims 6 to 10 are now pending.

Applicants respectfully request reconsideration of the present application in view of this amendment.

With respect to paragraph one (1) of the Office Action, Applicants thank the Examiner for indicating that the drawings submitted in the above-identified application are approved. Formal drawings will be submitted by Applicants when the application is allowed.

With respect to paragraph two (2) of the Office Action, the Abstract was objected to as being too long. Accordingly, Applicants respectfully request admittance of the new Abstract provided above. No new matter has been added. Applicants respectfully submit that the new Abstract complies with the rules of the U.S. Patent and Trademark Office; and thus request that the objection to the Abstract be withdrawn.

With respect to paragraph three (3) of the Office Action, claims 7 to 10 were objected to as being dependent upon a cancelled claim. Accordingly, Applicants respectfully request admittance of the amendments to claim 7 to 10 which provide that the claims correctly depend

from claim 6, not cancelled claim 5. No new matter has been added. Attached hereto is a Version Showing Changes Made in which underlining indicates additions to the claim(s) and square-bracketing indicates deletions to the claim(s). Applicants respectfully submit that the amended claims 7 to 10 comply with the rules of the U.S. Patent and Trademark Office; and thus request that the objection to claims 7 to 10 be withdrawn.

With respect to paragraphs four (4) to seven (7) of the Office Action, claims 6 to 8 and 10 were rejected under 35 U.S.C. § 103(a) as being unpatentable over U.S. Patent No. 4,611,916 to Yoshizumi (the "Yoshizumi reference") in view of U.S. Patent No. 3,635,552 to De Lang (the "De Lang reference")

The Yoshizumi reference purportedly concerns an optical measuring apparatus whose measuring light having frequency f1 is focused and its beam spot irradiates a surface of an object fixed on a carrier. Title and Abstract, lines 1-3. The Yoshizumi reference refers to shifting the carrier in a direction perpendicular to the optical axis of an objective lens to obtain measuring light reflected by the surface of the object; at the same time, reference light having frequency f2 irradiates a mirror mounted on the carrier to be substantially perpendicular to the optical axis of the lens to obtain reflected reference light. Abstract, lines 3-10. The Yoshizumi reference further refers to interfering the reflected reference light with the reflected measuring light to detect a beat frequency to optically, precisely measure a shape of the surface of the object. Abstract, lines 10-13. See also, cols. 1-2.

Claim 6 recites:

> A tunable interferometer for measuring an optical surface, comprising:
>
> at least one light source;
>
> a reference surface, light from the at least one light source impinging the reference surface, the reference surface reflecting a first interference beam;
>
> a test object, light from the at least one light source impinging the test object, the test object reflecting a second interference beam;
>
> at least one beam splitter, the first interference beam and the second interference beam striking the at least one beam splitter; and
>
> a polarizer polarizing the first interference beam and the second interference beam so that the first interference beam and the second interference beam each have a different polarization state relative to one another; and
>
> an analyzer positioned at an output of the interferometer, the analyzer having a variable polarization state, the analyzer tuning the interferometer as a function of the polarized first interference beam and the second interference beam.

The Yoshizumi reference does not teach or suggest at least the feature of an analyzer positioned at an output of the interferometer, the analyzer having a variable polarization state, the analyzer tuning the interferometer as a function of the polarized first interference beam and

the second interference beam, as in claim 6. Further, the Yoshizumi reference is believed to teach and/or suggest adjusting the position of a carrier upon which the test object is fixed. In direct contrast, claim 6 requires an analyzer, which is positioned at the output of the interferometer and has a variable polarization state, to tune the interferometer. Accordingly, the Yoshizumi reference does not teach or suggest the claim feature(s) of claim 6.

The secondary De Lang reference purportedly concerns an optical interferometer having a beam splitter and a means for circularly polarizing the split beams into mutually opposite directions. Title and Abstract, lines 1-3. The De Lang reference further refers to redirecting the circularly polarized beams to an analyzer to generate a phase interference pattern which is detected by photodetection devices. Abstract, lines 3-5. See also, col. 2.

The De Lang reference does not cure the deficiencies of the Yoshizumi reference. While the De Lang reference does include an analyzer, the De Lang reference does not include at least the feature(s) of a reference surface, light from the at least one light source impinging the reference surface, the reference surface reflecting a first interference beam, an analyzer tuning the interferometer as a function of the polarized first interference beam and the second interference beam, among other things, as in claim 6. Further, the De Lang reference refers to its purpose as providing an interferometer suitable for measurements of phase differences which vary in time comparatively rapidly – by converting partial beams into beams circularly polarized in opposite senses by means of polarization-optical expedients, a linear polarizer being arranged in the path of the recombined partial beams. See col. 1, line 71 - col. 2, line 6.

Further, the Yoshizumi and De Lang references are not combinable since, among other reasons, the Yoshizumi reference teaches away from positioning an analyzer to tune the interferometer in its purported teaching of adjusting the carrier holding the test object; and, the De Lang reference is focused on solving an entirely different purpose than the Yoshizumi reference.

Accordingly, the Yoshizumi reference and the De Lang reference, alone or in combination, do not render obvious claim 6 of the above-identified application. Since claims 7, 8 and 10 depend from claim 6, those claims are also allowable for at least the same reasons as for claim 6. Thus, withdrawal of the rejection of claims 6 to 8 and 10 under 35 U.S.C. § 103(a) over the Yoshizumi reference in view of the De Lang reference is respectfully requested.

With respect to paragraph eight (8) of the Office Action, claim 9 was rejected under 35 U.S.C. § 103(a) as being unpatentable over the Yoshizumi reference in view of U.S. Patent

No. 5,627,666 to Sharp et al. (the "Sharp reference")

Since claim 9 depends from claim 6, the Yoshizumi reference does not teach or suggest the features of claim 9 for at least the same reasons as those discussed above for claim 6.

The secondary Sharp reference purportedly concerns a liquid crystal phase modulator using cholesteric circular polarizers. Title. The Sharp reference refers to using a phase modulator comprising an electro-optically rotatable smectic liquid crystal half-wave retarder in combination with a cholesteric liquid crystal circular polarizer. See Abstract, lines 1-4. The Sharp reference further refers to providing a polarizing interferometer which utilizes the phase modulator in combination with a second cholesteric circular polarizer and a linear polarizer. See Abstract, lines 5-8.

The Sharp reference does not cure the deficiencies of the Yoshizumi reference. The Sharp reference does not teach and/or suggest at least the features of an analyzer positioned at an output of the interferometer, the analyzer having a variable polarization state, the analyzer tuning the interferometer as a function of the polarized first interference beam and the second interference beam.

Accordingly, the Yoshizumi reference and the Sharp reference, alone or in combination, do not render obvious claim 9 of the above-identified application. Thus, withdrawal of the rejection of claim 9 under 35 U.S.C. § 103(a) over the Yoshizumi reference in view of the Sharp reference is respectfully requested.

Moreover, to reject a claim as obvious under 35 U.S.C. § 103, the prior art must disclose or suggest each claim element and it must also provide a motivation or suggestion for combining the elements in the manner contemplated by the claim. (See Northern Telecom, Inc. v. Datapoint Corp., 908 F.2d 931, 934 (Fed. Cir. 1990), cert. denied, 111 S. Ct. 296 (1990); In re Bond, 910 F.2d 831, 834 (Fed. Cir. 1990)).

The Court in the case of In re Jones stated that:

> Before the PTO may combine the disclosures of two or more prior art references in order to establish *prima facie* obviousness, there must be some suggestion for doing so, found either in the references themselves or in the knowledge generally available to one of ordinary skill in the art. . . .
>
> Conspicuously missing from this record is any evidence, other than the PTO's speculation (if it be called evidence) that one of ordinary skill . . . would have been motivated to make the modifications . . . necessary to arrive at the claimed [invention].

In re Jones, 21 U.S.P.Q.2d at 1943 & 1944 (citations omitted; italics in original). In short, there must be evidence of why a person having ordinary skill in the art would be motivated to modify a reference to provide the claimed subject matter of the claims.

More recently, the Federal Circuit in the case of In re Kotzab has made plain that even if a claim concerns a "technologically simple concept" -- which is not even the case here, there still must be some finding as to the "specific understanding or principle within the knowledge of a skilled artisan" that would motivate a person having no knowledge of the claimed subject matter to "make the combination in the manner claimed", stating that:

> In this case, the Examiner and the Board fell into the hindsight trap. The idea of a single sensor controlling multiple valves, as opposed to multiple sensors controlling multiple valves, is a technologically simple concept. With this simple concept in mind, the Patent and Trademark Office found prior art statements that in the abstract appeared to suggest the claimed limitation. But, there was no finding as to the specific understanding or principle within the knowledge of a skilled artisan that would have motivated one with no knowledge of Kotzab's invention to make the combination in the manner claimed. In light of our holding of the absence of a motivation to combine the teachings in Evans, we conclude that the Board did not make out a proper *prima facie* case of obviousness in rejecting [the] claims . . . under 35 U.S.C. Section 103(a) over Evans.

(See In re Kotzab, 55 U.S.P.Q.2d 1313, 1318 (Federal Circuit 2000) (citations omitted, italics in original)). Here again, there have been no such findings.

Accordingly, it is respectfully submitted that the rejections of claims 6 to 10 under 35 U.S.C. § 103(a) should be withdrawn.

CONCLUSION

In view of all of the above, it is believed that the objection to the Abstract and the claims 7 to 10, and the rejections of claims 6 to 10, under 35 U.S.C. § 103(a), have been obviated, and that the Abstract and all currently pending claims 6 to 10 are allowable. It is therefore respectfully requested that the objections and rejections be reconsidered and withdrawn, and that the present application issue as early as possible.

If it would further allowance of the present application, the Examiner is invited to contact the undersigned at the contact information shown below.

Respectfully submitted,

By: Linda M. Saunders
Reg. No. 47084

Dated: December 30, 2002

By: Richard L. Mayer
Richard L. Mayer
(Reg. No. 22,490)

KENYON & KENYON
One Broadway
New York, New York 10004
(212) 425-7200 (telephone)
(212) 425-5288 (facsimile)

CUSTOMER NO. 26646

IN THE CLAIMS:

Please amend without prejudice claims 7 to 10 as follows:

7. (Amended) The interferometer according to claim [5] 6, wherein the interferometer is a two-beam interferometer, wherein the light is a linearly polarized light, and wherein the polarizer includes a first $\lambda/4$ retardation plate allocated to one of the reference surface and the test object, and a second $\lambda/4$ retardation plate positioned before the analyzer.

8. (Amended) The interferometer according to claim [5] 6, wherein the analyzer includes a rotatable linear analyzer.

9. (Amended) The interferometer according to claim [5] 6, wherein the analyzer includes an electrically tunable liquid-crystal element with a linear polarizer.

10. (Amended) The interferometer according to claim [5] 6, wherein the analyzer is arranged physically separate from the interferometer.